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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/740,751	12/19/2000	Tongbi Jiang	23804-P002C2	8773

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EXAMINER

CHANG, RICK KILTAE

ART UNIT PAPER NUMBER

3729

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/740,751

Applicant(s)

JIANG ET AL.

Examiner

Rick K. Chang

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 18-96 is/are pending in the application.
- 4a) Of the above claim(s) that are not listed in item 6 below is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-30 and 47-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/12/04 has been entered.

### *Election/Restrictions*

2. Applicant's election without traverse of Species 1 in the reply filed on 8/2/05 is acknowledged.

### *Claim Objections*

3. Claims are objected to because of the following informalities: for example, give full chemical name for Si<sub>3</sub>N<sub>4</sub>. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 18-19, 30 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess (US 4,642,160) in view of Liebowitz (US 4,513,055).

Burgess discloses first 16 and second 18 materials, Fig. 7 shows 28, 12 is a pad, 16 is a positive CTE, 16 is thicker than 18, except for a negative CTE for second material.

Liebowitz discloses a negative CTE for second material (col. 3, lines 30-31).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Burgess by providing a negative CTE for second material, as taught by Liebowitz, for the purpose of preventing unwanted expansion and contraction when the electronic component is mounted on a PCB.

6. Claims 20-21 and 48-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess (US 4,642,160)/Liebowitz (US 4,513,055) as applied to claims 18 and 47 above, and further in view of Sanjana et al (US 4,590,539).

Burgess/Liebowitz fail to disclose silicon oxide and polyimide.

Sanjana discloses polyimide (col. 1, lines 53-54).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Burgess/Liebowitz by providing polyimide, as taught by Sanjana, for the purpose of manufacturing a PCB without E-glass fabrics.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to provide silicon oxide because Applicant has not disclosed that incorporating silicon oxide provides a novel device, is used for a particular purpose, or solves a stated problem. Therefore, it would have been an obvious matter of design choice to modify Burgess/Liebowitz to obtain the invention as specified in claims 20-21.

7. Claims 22-25 and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess (US 4,642,160)/Liebowitz (US 4,513,055) as applied to claims 18 and 47 above, and further in view of Anderson et al (US 6,195,193).

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Burgess/Liebowitz fail to disclose single-crystal, amorphous or polymer bound Zirconium tungstate.

Anderson discloses Zirconium tungstate (col. 15, line 10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Burgess/Liebowitz by providing Zirconium tungstate, as taught by Anderson, for the purpose preventing unwanted expansion and contraction when the electronic component is mounted on a PCB.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to provide single-crystal, amorphous or polymer bound Zirconium tungstate because Applicant has not disclosed that incorporating single-crystal, amorphous or polymer bound Zirconium tungstate provides a novel device, is used for a particular purpose, or solves a stated problem. Therefore, it would have been an obvious matter of design choice to modify Burgess/Liebowitz to obtain the invention as specified in claims 22-25.

8. Claims 27-28 and 54-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess (US 4,642,160)/Liebowitz (US 4,513,055) as applied to claims 18 and 47 above, and further in view of Wilson (US 5,966,803).

Burgess/Liebowitz fail to disclose that the substrate is ceramic and a package of an IC.

Wilson discloses that the substrate is ceramic and a package of an IC (col. 1, line 57).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Burgess/Liebowitz by providing ceramic and a package of an IC, as taught by Wilson, for the purpose of forming an electronic device using cheap materials.

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9. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess (US 4,642,160)/Liebowitz (US 4,513,055) as applied to claim 18 above, and further in view of Official Notice.

Burgess/Liebowitz fail to disclose forming the first material using a spin-on process followed by a photo-define and –etch process.

Official Notice is taken that it is well known in the art to form a polymer material using a spin-on process followed by a photo-define and –etch process to apply uncured material on a substrate and to form vias therein.

*Allowable Subject Matter*

10. Claims 26 and 53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

11. **Please provide reference numerals (either in parentheses next to the claimed limitation or in a table format with one column listing the claimed limitation and another column listing corresponding reference numerals in the remark section of the response to the Office Action) to all the claimed limitations as well as support in the disclosure for better clarity (optional). Applicants are duly reminded that a full and proper response to this Office Action that includes any amendment to the claims and specification of the application as originally filed requires that the applicant point out the support for any amendment made to the disclosure, including the claims. See 37 CFR 1.111 and MPEP 2163.06.**

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick K. Chang whose telephone number is (571) 272-4564. The examiner can normally be reached on 5:30 AM to 1:30 PM, Monday through Thursday.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.



RICHARD CHANG  
PRIMARY EXAMINER

RC

August 22, 2005